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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,168	12/31/2003	Dan S. Froelich	884.913US1	5039

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EXAMINER

AHN, SAM K

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/750,168

Applicant(s)

FROELICH ET AL.

Examiner

Sam K. Ahn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 050304.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 1-15 and 31-45 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claims 1-15, the compliance of the claimed invention with the subject matter eligibility requirement of 35 U.S.C. 101 has been determined by the following analysis.

The claimed invention does fall within an enumerated statutory category claiming a method or a process. The claimed invention also falls with a 101 judicial exception claiming an algorithm or an abstract idea of performing measuring jitter of a signal, and the claimed invention covers a 101 judicial exception or practical application of the judicial exception.

However, treating the claim as a whole, the claim does not have any practical application by physical transformation, and further, does not produce a useful, tangible and concrete result. The claimed "evaluating... and determining" steps do not constitute as a physical transformation or produce useful, tangible result, since claim 1 as a whole stops at determining step. Therefore, the claim merely recites an algorithm directed to a non-statutory subject matter.

Claims 31-45 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility.

The claims recite instructions of performing the steps of evaluating and determining in a machine-readable medium performed by a computerized system. However, the specification does not provide a specific and substantial asserted utility of how the steps in the machine-readable medium are implemented by the computerized system.

Claims 31-45 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 16-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 recites a jitter measurement apparatus, however, the body of the claim only recites performing series of steps on a signal. Therefore, it is unclear of what

is being claimed, whether it is an apparatus, but without reciting elements performing the functions recited, or it is a process of determining a signal.

Claims 17-30 directly or indirectly depend on claim 16.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,2,4,5,7,14,16,17,19,20,22,29,31,32,34,35,37 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Whitlock US 2002/0118738 A1.

Regarding claim 1, Whitlick teaches a method of measuring jitter, comprising: evaluating a clock signal within a first window (note paragraph 0022, evaluating by producing offset frequency of a received signal with a clock signal); determining a recovered clock period from the clock signal within the first window (determining the frequency of the received signal, 2,048,000 Hz, note paragraph 0020, wherein one skilled in the art would recognize that the period T is equal to 1/frequency in a window of 200 clock cycles); evaluating the clock signal within a second window, the second window being smaller than the first window (note paragraph 0025 of a second window of 50 and 150 clock cycles); and determining the clock signal's jitter within the second window (determines jitter, note paragraph 0027).

Regarding claim 2, Whitlock further teaches wherein the second window is located within the first window (the second window of 50 and 150 cycles being less than the first window of 200, hence are within the first window).

Regarding claim 4, Whitlock further teaches wherein the clock signal is recovered from a data signal (see input I in Fig.4 to element 413 and note paragraph 0034 wherein the input signal is a PCM signal, wherein one skilled in the art would recognize that the PCM signal has data with encoded clock signals).

Regarding claim 5, Whitlock further teaches determining a jitter figure of merit from evaluation of jitter within the second window (determining total jitter, note paragraph 0027 from the second window, as previously explained).

Regarding claim 7, Whitlock further teaches comprising evaluating the clock signal within more than one second window, each second window being smaller than the first window and located within the first window (note paragraph 0025 of a second window of 50 and 150 clock cycles).

Regarding claim 14, Whitlock further teaches wherein determining the clock signal's jitter within the second window comprises measuring the difference between an expected clock transition point and an actual transition point for each

clock transition point within the window difference between reference clock and input signal, note paragraph 0022).

Regarding claim 16, the claim is rejected as applied to claim 1 with similar scope.

Regarding claim 17, the claim is rejected as applied to claim 2 with similar scope.

Regarding claim 19, the claim is rejected as applied to claim 4 with similar scope.

Regarding claim 20, the claim is rejected as applied to claim 5 with similar scope.

Regarding claim 22, the claim is rejected as applied to claim 7 with similar scope.

Regarding claim 29, the claim is rejected as applied to claim 14 with similar scope.

Regarding claim 31, the claim is rejected as applied to claim 1 with similar scope.

Regarding claim 32, the claim is rejected as applied to claim 2 with similar scope.

Regarding claim 34, the claim is rejected as applied to claim 4 with similar scope.

Regarding claim 35, the claim is rejected as applied to claim 5 with similar scope.

Regarding claim 37, the claim is rejected as applied to claim 7 with similar scope.

Regarding claim 44, the claim is rejected as applied to claim 14 with similar scope.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3,9,15,18,24,30,33,39 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitlock US 2002/0118738 A1.

Regarding claim 3, Whitlock teaches all subject matter claimed, as applied to claim 1. And although Whitlock teaches a first and second windows, Whitlock does not explicitly teach wherein the second window is at least partially located outside the first window.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement as such. Applicant has not disclosed that such implementation provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with being at the center, at least partially located inside or outside the first window because the clock cycles of the second window is 50 and 150 clock cycles that updates MAX and MIN registers (note paragraph 0025). Therefore, it would have been obvious to one of ordinary skill in this art to modify to obtain the invention as specified in the claim.

Regarding claim 9, the claim is rejected as applied to claim 3 with similar scope.

Regarding claim 15, Whitlock teaches all subject matter claimed, as applied to claim 1. And although Whitlock teaches producing total peak to peak jitter (note paragraph 0027), Whitlock does not explicitly teach further comprising generation

of an eye pattern, and comparison of the generated eye pattern with an eye template defining maximum allowable jitter.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement as such. Applicant has not disclosed that the eye pattern provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the total peak to peak jitter because it properly measures the jitter in the received signal. Furthermore, generation of eye pattern and determining jitter from an eye template is well-known to one skilled in the art. Therefore, it would have been obvious to one of ordinary skill in this art to modify to obtain the invention as specified in the claim.

Regarding claim 18, the claim is rejected as applied to claim 3 with similar scope.

Regarding claim 24, the claim is rejected as applied to claim 9 with similar scope.

Regarding claim 30, the claim is rejected as applied to claim 15 with similar scope.

Regarding claim 33, the claim is rejected as applied to claim 3 with similar scope.

Regarding claim 39, the claim is rejected as applied to claim 9 with similar scope.

Regarding claim 45, the claim is rejected as applied to claim 15 with similar scope.

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5. Claims 8,10,23,25,38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitlock US 2002/0118738 A1 in view of Vining US 7,200,782 B2.

Regarding claim 8, Whitlock teaches all subject matter claimed, as applied to claim 1. And although Whitlock teaches the clock signal, as previously explained, Whitlock does not explicitly teach wherein the clock signal is a PCI Express bus clock signal.

Vining teaches generation of a PCI Express bus clock signal (330 in Fig.3 applicable to PCI Express, note col.1, line 53).

Hence, both Whitlock and Vining teach generation of a clock signal, wherein Vining further teaches generating a clock signal compatible in a PCI Express with consideration of jitter. Therefore, it would have been obvious to one skilled in the art at the time the invention was made incorporate the teaching of Vining in the system of Whitlock by implementing the clock generation for the purpose of increasing the flexibility of the system by implementing in a PCI Express environment.

Regarding claim 10, Vining further teaches sampling the clock signal for evaluation (401 in Fig.4).

Regarding claim 23, the claim is rejected as applied to claim 8 with similar scope.

Regarding claim 25, the claim is rejected as applied to claim 10 with similar scope.

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Regarding claim 38, the claim is rejected as applied to claim 8 with similar scope.

Regarding claim 40, the claim is rejected as applied to claim 10 with similar scope.

6. Claims 11, 26 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitlock US 2002/0118738 A1 in view of Vining US 7,200,782 B2 and Claydon et al. US 6,154,871 (Claydon).

Regarding claim 11, Whitlock in view of Vining teaches all subject matter claimed, as applied to claim 1. Vining teaches sampling the clock signal for evaluation (401 in Fig.4), however do not explicitly teach using Sinc interpolation to produce interpolated sampling points.

Claydon teaches implementation of Sinc interpolation (130 in Fig.3), and suggests that Sinc interpolation is based on the sampling theory which shows that a signal which has been Nyquist sampled can be reconstructed using sinc pulses (note col.8, lines 40-51). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Claydon in the sampler of Vining of performing Sinc interpolation for the purpose of reconstructing a signal which has been Nyquist sampled using sinc pulses (note col.8, lines 40-51).

Regarding claim 26, the claim is rejected as applied to claim 11 with similar scope.

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Regarding claim 41, the claim is rejected as applied to claim 11 with similar scope.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Li et al. Paradigm Shift for Jitter and Noise in Design and Test > GB/s communication Systems IEEE, 2003, p. 1-5 teach determination of jitter in a high speed environment such as PCI Express.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sam K. Ahn
Patent Examiner

4/5/07